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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,072

12/09/2005

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EXAMINER

ZHU, WEIPING

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,072	<b>Applicant(s)</b> ISHIDA ET AL.	
	<b>Examiner</b> WEIPING ZHU	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 8-19 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1, 4 and 8-13 are currently under examination. Applicant's election without traverse of Invention I, Claims 1-13 in the reply filed on April 18, 2008 is acknowledged, wherein claim 1 has been amended and claims 2, 3 and 5-7 have been cancelled. The unelected Invention II, claims 14-19, has been withdrawn from consideration by the examiner.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-155552 A.

With respect to claim 1, JP ('552 A) disclose a continuous carburizing process under a pressure of 50 – 100 Pa in a carburizing atmosphere using acetylene (i.e. an unsaturated hydrocarbon) as a carburizing medium comprising (abstract, paragraphs [0035] and [0036] and claim 3, machine translation): keeping the pressure in a surrounding area of the carburizing atmosphere lower than that in the chamber; activating carbon in the carburizing atmosphere by heating the carburizing atmosphere to 900° C; passing metal rods, which read on the claimed metal wires, continuously through the carburizing atmosphere and thereby carburizing the rods; diffusing the

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carbon into the inner section of the rods in a fixed area next to the carburizing area under a nitrogen atmosphere at the same temperature; and repeating the carburizing and the diffusing steps multiple times.

The carburizing pressure and the carburizing temperature of JP ('552 A) are within the claimed ranges. A prima facie case of obviousness exists. See MPEP 2144.05 I.

With respect to claims 8 and 10, JP ('552 A) discloses that the carburizing is performed until the surface of the rod reaches or exceeds the desired carbon content (paragraph [0037], machine translation).

With respect to claim 9, JP ('552 A) does not disclose the diameter of the wire as claimed. However it is well settled that merely changing the size of an article is not a matter of invention. See MPEP 2144.04 IV.

With respect to claims 11-13, JP ('552 A) discloses the continuous vacuum carburizing process can be used to carburize metallic materials (paragraph [0004]) without limit the types of the metallic materials. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carburize the metallic materials as claimed with the continuous vacuum carburizing process of JP ('552 A) with expected success, because JP ('552 A) disclosed the same utility for all types of metallic materials suitable for a carburizing treatment. See MPEP 2144.05 I.

3. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP ('552 A) as applied to claim 1 above in view of Poor et al. (US Pub. 2003/0089426 A1).

With respect to claim 4, JP ('552 A) does not disclose bring the carbon into plasma state as claimed. Poor et al. ('426 A1) discloses generating plasma of carbon in a vacuum carburizing furnace chamber (claim 31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to generating plasma of carbon in the continuous vacuum carburizing chamber of JP ('552 A) in order to produce a uniform infusion of carbon over the irregular part surface as disclosed by Poor et al. ('426 A1) (paragraph [0010]).

### ***Conclusion***

4. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

WZ

6/18/2008